

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 10 August 2001 (10.08.01)	
International application No. PCT/US00/27356	Applicant's or agent's file reference 284867-00007
International filing date (day/month/year) 04 October 2000 (04.10.00)	Priority date (day/month/year) 05 October 1999 (05.10.99)
Applicant KHIZROEV, Sakhrat et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

30 April 2001 (30.04.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Juan Cruz Telephone No.: (41-22) 338.83.38
---	---

PARENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

TOWNER, Alan, G.
Pietragallo, Bosick & Gordon
One Oxford Centre, 38th Floor
301 Grant Street
Pittsburgh, PA 15219
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 10 August 2001 (10.08.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 284867-00007	
International application No. PCT/US00/27356	International filing date (day/month/year) 04 October 2000 (04.10.00)

1. The following indications appeared on record concerning:

☒ the applicant ☒ the inventor ☐ the agent ☐ the common representative

Name and Address KRYDER, Mark, Howard P.O. Box 191 4825 Wexford Run Road Bradfordwoods, PA 15015 United States of America	State of Nationality US	State of Residence US
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☐ the name ☒ the address ☐ the nationality ☐ the residence

Name and Address KRYDER, Mark, Howard 1104 Grandview Avenue Apartment # 3 Pittsburg, PA 15211 United States of America	State of Nationality US	State of Residence US
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Juan Cruz
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

TOWNER, Alan, G.
Pietragallo, Bosick & Gordon
One Oxford Centre, 38th Floor
301 Grant Street
Pittsburgh, PA 15219
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 13 juillet 2001 (13.07.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 284867-00007	
International application No. PCT/US00/27356	International filing date (day/month/year) 04 octobre 2000 (04.10.00)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address TOWNER, Alan, G. Eckert Seamans Cherin & Mellott, LLC 44th floor 600 Grant Street Pittsburgh, PA 15219 United States of America	State of Nationality	State of Residence
	Telephone No. 412 566 6109	
	Facsimile No. 412 566 6099	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input checked="" type="checkbox"/> the person	<input checked="" type="checkbox"/> the name	<input checked="" type="checkbox"/> the address
<input type="checkbox"/> the nationality		
<input type="checkbox"/> the residence		
Name and Address TOWNER, Alan, G. Pietragallo, Bosick & Gordon One Oxford Centre, 38th Floor 301 Grant Street Pittsburgh, PA 15219 United States of America	State of Nationality	State of Residence
	Telephone No. (412) 263-4340	
	Facsimile No. (412) 261-0915	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input checked="" type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input type="checkbox"/> the elected Offices concerned	
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer</p> <p>I. Britel</p> <p>Telephone No.: (41-22) 338.83.38</p>
--	--

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 284867-00007	FOR FURTHER ACTION		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US 00/ 27356	International filing date (day/month/year) 04/10/2000	(Earliest) Priority Date (day/month/year) 05/10/1999	
Applicant SEAGATE TECHNOLOGY, LLC			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

4, 7, 8

☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The abstract is modified as follows:

line 1: after "head" insert "(50,56,60)";

Line 2: after "gap" insert "(54,59,64)"; Line 2: after "first" insert "(51,57,61);

LiLine 2: after "magnetic" insert "(52,58,62) .

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IS 00/27356

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G11B5/23

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 344 890 A (IBM) 23 January 1974 (1974-01-23) page 3, line 80 - line 91 page 3, line 107 - line 126; claim 1; figure 3	1,8
X	GB 948 648 A (PHILIPS ELECTRICAL INDUSTRIES LTD) 5 February 1964 (1964-02-05) column 5, line 94 - line 129; figure 4	1,8
X	US 2 822 427 A (RALPH B. ATKINSON ET AL.) 4 February 1958 (1958-02-04)	8
A	page 3, line 20 - page 4, line 38 page 8, line 17 - line 21; figures 2,9	1

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

12 January 2001

Date of mailing of the international search report

19/01/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Fux, J

INTERNATIONAL SEARCH REPORT

International Application No

PO 00/27356

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 621 153 A (WENNER JOHN W) 16 November 1971 (1971-11-16)	15,16
A	column 1, line 18 - line 22 column 1, line 71 - line 75 column 2, line 7 - line 13; figures 2,4 ---	1,2,8,9
X	US 5 016 342 A (PISHARODY RAGHAVAN K ET AL) 21 May 1991 (1991-05-21)	15-17
A	column 5, line 5 - line 49; figure 1B ---	1,2,8,9
A	PATENT ABSTRACTS OF JAPAN vol. 007, no. 051 (P-179), 26 February 1983 (1983-02-26) -& JP 57 198523 A (SHIROU OKAMURA), 6 December 1982 (1982-12-06) abstract figure 6 ---	1,2,5, 8-10,12
A	US 4 422 118 A (HELLE MICHEL ET AL) 20 December 1983 (1983-12-20) claim 3 ---	1,8
A	US 3 582 918 A (TIEMANN JEROME J) 1 June 1971 (1971-06-01) column 4, line 40 - line 72; figures 4,5 ---	1-3,5,6, 8-10,12, 13
A	PATENT ABSTRACTS OF JAPAN vol. 007, no. 231 (P-229), 13 October 1983 (1983-10-13) & JP 58 121124 A (SANYO DENKI KK), 19 July 1983 (1983-07-19) abstract ---	15-17
A	US 4 188 649 A (CHEATHAM SAMUEL D ET AL) 12 February 1980 (1980-02-12) ---	
A	PATENT ABSTRACTS OF JAPAN vol. 012, no. 220 (P-720), 23 June 1988 (1988-06-23) & JP 63 016407 A (SEIKO EPSON CORP), 23 January 1988 (1988-01-23) abstract -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PC 00/27356

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 1344890 A	23-01-1974	CA 960356 A DE 2233453 A FR 2150335 A IT 963420 B JP 48030412 A	31-12-1974 22-02-1973 06-04-1973 10-01-1974 21-04-1973
GB 948648 A		NONE	
US 2822427 A	04-02-1958	NONE	
US 3621153 A	16-11-1971	CH 518608 A DE 2052812 A FR 2071803 A GB 1281636 A JP 49032339 B	31-01-1972 24-06-1971 17-09-1971 12-07-1972 29-08-1974
US 5016342 A	21-05-1991	DE 4020206 A JP 2608971 B JP 3041609 A US 5189580 A	10-01-1991 14-05-1997 22-02-1991 23-02-1993
JP 57198523 A	06-12-1982	NONE	
US 4422118 A	20-12-1983	FR 2489570 A DE 3169531 D EP 0046697 A JP 57060523 A	05-03-1982 02-05-1985 03-03-1982 12-04-1982
US 3582918 A	01-06-1971	NONE	
JP 58121124 A	19-07-1983	JP 1733261 C JP 4016842 B	17-02-1993 25-03-1992
US 4188649 A	12-02-1980	CA 1119720 A DE 2849693 A FR 2410861 A GB 2009483 A, B IT 1160099 B JP 54080112 A SE 7811794 A	09-03-1982 07-06-1979 29-06-1979 13-06-1979 04-03-1987 26-06-1979 06-06-1979
JP 63016407 A	23-01-1988	NONE	

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

TOWNER, A.G.
ECKERT SEAMANS CHERIN & MELLOTT, LL
C
44th floor
600 Grant Street
Pittsburgh, PA 15219
ETATS-UNIS D'AMERIQUE

RECEIVED

SEP 20 2001

PB & G
IP DEPT.

PCT

WRITTEN OPINION

(PCT Rule 66)

Date of mailing
(day/month/year) 28.08.2001

Applicant's or agent's file reference
284867-00007

REPLY DUE within 2 month(s)
from the above date of mailing

International application No.
PCT/US00/27356

International filing date (day/month/year)
04/10/2000

Priority date (day/month/year)
05/10/1999

International Patent Classification (IPC) or both national classification and IPC
G11B5/23

Applicant

SEAGATE TECHNOLOGY, LLC et al.



1. This written opinion is the first drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain document cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension; see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 05/02/2002.

Name and mailing address of the international preliminary examining authority:

 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer / Examiner

Poth, H

Formalities officer (incl. extension of time limits)

Slater, S

Telephone No. +49 89 2399 2565



WRITTEN OPINION

International application No. PCT/US00/27356

I. Basis of the opinion

1. With regard to the **elements** of the international application (Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"):

Description, pages:

1-10 as originally filed

Claims, No.:

1-19 as originally filed

Drawings, sheets:

1/7-7/7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

WRITTEN OPINION

International application No. PCT/US00/27356

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- | | |
|-------------------------------|----------------------|
| 1. Statement | |
| Novelty (N) | Claims 1,2,8,9,15-18 |
| Inventive step (IS) | Claims 1,2,8,9,15-18 |
| Industrial applicability (IA) | Claims 1-19 |

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**WRITTEN OPINION
SEPARATE SHEET**

International application No. PCT/US00/27356

Re Item I

Basis of the opinion

The examination is being carried out on the **following application documents:**

Text for the Contracting States:

AT BE CH DE DK ES FI FR GB GR IT IE LI LU MC NL PT SE

Description, pages:

1-10 as originally filed

Claims, No.:

1-19 as originally filed

Drawings, sheets:

1/7-7/7 as originally filed

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

D1: GB-A-1 344 890

D2: US-A-5,016,342

D3*: US-A-5,621,595

*D3 has been cited in the application (cf. p.2 l.3).

2. As to claim 1, D1 already describes a non-uniform gap (cf. p.3 l.83-92 and fig.3), wherein the smaller separation of the yokes at the edge portions concentrate the magnetic flux between the poles in the vicinity of the gap and hence produces a localized magnetic field in the magnetic storage medium.

Thus, the subject-matter of claim 1 is not novel.

This applies to the much broader independent claim 8 *mutatis mutandis*.

3. The subject-matter of claims 15 to 17 is not novel in view of D2 col.5 l.5-49 and fig.1.
4. As to claim 2, D3 already describes a cavity gap; there the substantial contact between the pole tips' side edges is described to effectively eliminate all flux lines emanating from the edges and corners (cf e.g. abstract l.4-6).

But D3 does not address the problem described in the present application on p.5 bottom-p.6 top, namely to avoid creating a regular gap when magnetically saturating the poles' side edge connecting walls, nor that this can be overcome by a non-uniform gap.

Thus, the subject-matter of claim 2 involves an inventive step.

This applies *mutatis mutandis* to the subject-matter of claims 9 and 18.

Re Item VII

Certain defects in the international application

1. The claims not delimited from D1 and D3 (R.6.3(b)), nor are D1 and D3 cited and assessed in the description (R.5.1(ii)).
2. The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

Re Item VIII

Certain observations on the international application

1. Claim 2 stipulates from claim 1 "means for concentrating magnetic flux ...", albeit the cavity known from D2 further stipulated in claim 2 already constitutes such means.

Thus said "means for concentrating magnetic flux ..." must be further means which are, however, not further clearly defined; the features of dependent claims 5 and 6 mean such a clear definition, but not that of dependent claim 3 since any curvature does not necessarily concentrate the magnetic field.

This applies mutatis mutandis to claims 10 to 14 and 18 and 19.

2. Claim 8 merely stipulates a non-uniform gap without further specifying - as in claim 1 - that means for concentrating the magnetic flux should also be implemented.

Thus, claim 8 is not clear in view of claim 1 and superfluous.